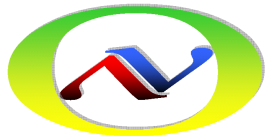




# Accelerator & NuMI Upgrades Update

Paul Derwent

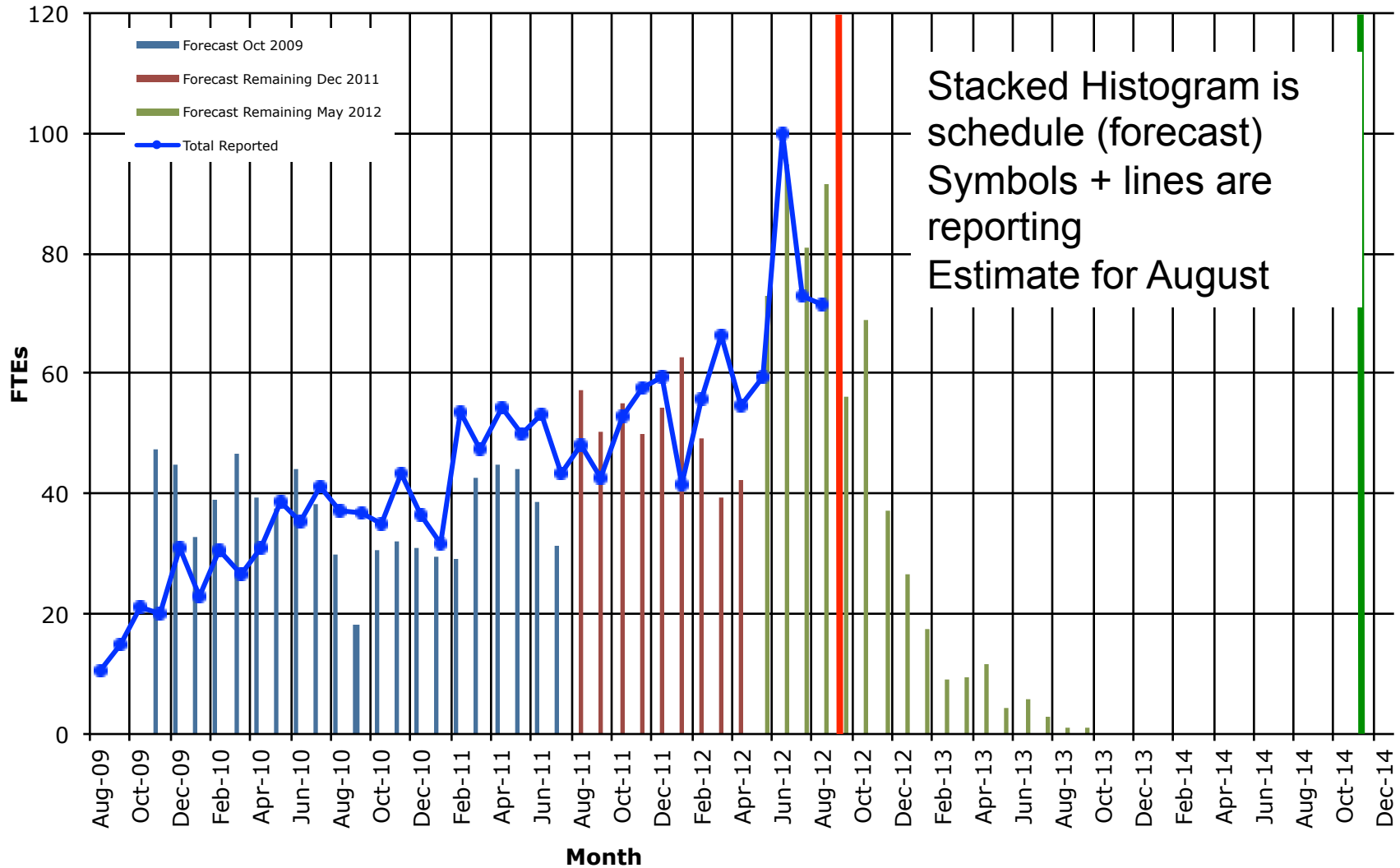
28 August 2012



## ANU Resource Requirements

Time Now

CD-4



FTE := 147.3 hours/month



# Remaining Hardware

- Lamberton magnets: some problems with vacuum seals
  - Installation scheduled in September (Injection line) and December (Extraction line)
- Remaining kickers are in fabrication
  - 6 of 6 short full turn RKD complete (with beam tubes!) and in power testing, installation scheduled in September
  - Long full turn RKB magnets to follow (all parts in hand), installation scheduled in December
- RF cavities:
  - 1<sup>st</sup> cavity final welds and pressure test complete, to MI60 Friday?
  - 2<sup>nd</sup> cavity had major vacuum welds in June, need to complete vacuum ports. Prep work for inner and outer cooling lines well underway
  - 3<sup>rd</sup> cavity at e-beam welder
    - Setting up for welds, “ball bearings started to fall out of their machine”
    - Repairs by Sciaky, latest estimate is Wed Aug 29 to continue work



# RF Cavity progress





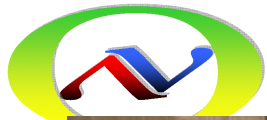
# Shutdown work

- Injection line kickers installed!
- Gap Clearing Kickers : first one moved from MI to RR yesterday, complete by end of next week
- BPM cable pulls in RR30 and RR60
  - Do these earlier than scheduled while awaiting for 30 installation
- Horn 2 was installed, alignment checked, removed to adjust alignment fixtures
  - Should be back in end of this week

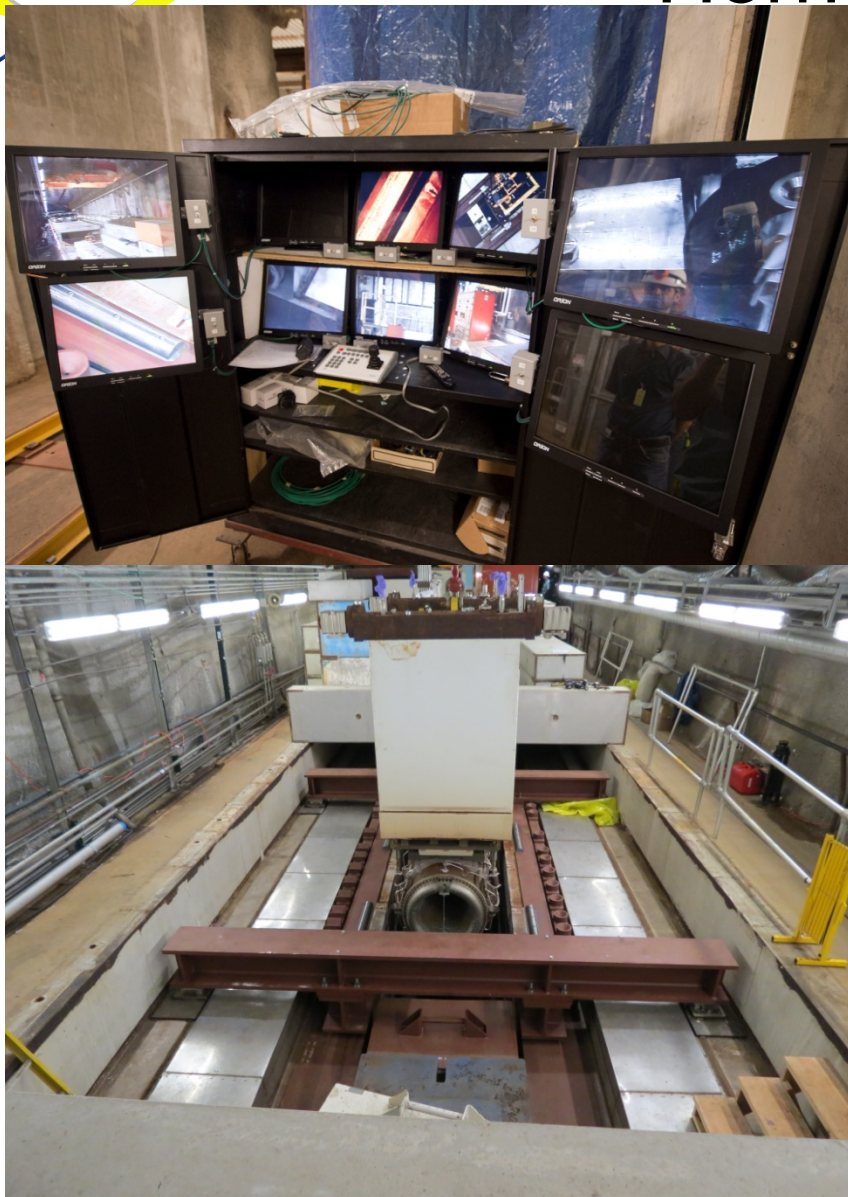


# Recycler Injection Kicker Installation





# Horn 2 Relocation





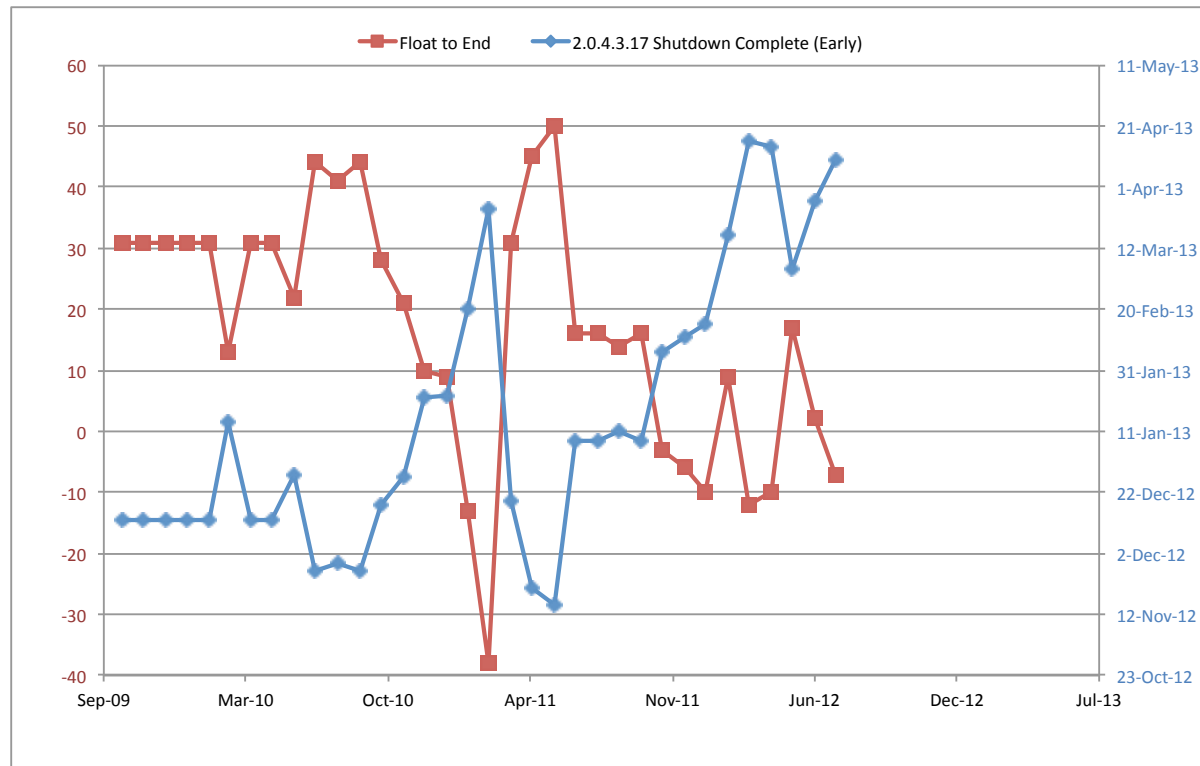
# RR30/Extraction Line Installation

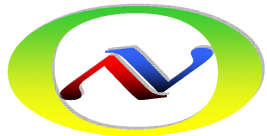
- Planning for internal readiness review October 1<sup>st</sup>
  - Jerry Leibfritz, Todd Sullivan, Mike Andrews
  - Since it is a hot area, want to be ready for work
    - Is the scope of work defined?
    - Are all of the stands and vacuum designs complete?
    - Are all of the stands and vacuum assembly and installation drawings complete?
    - Are all stand and vacuum components been ordered and delivered?
    - Do we have all the hardware/tools needed for the work?
    - Do appropriate HA's exist for the work?
    - Are there additional safety documents needed for the work?
      - Are they complete and signed?
      - Are any procedures written and agreed upon?
    - Are there special resources, conditions or configuration needed for the work (e.g.: Reco lifts, Lifting fixtures, etc.)?



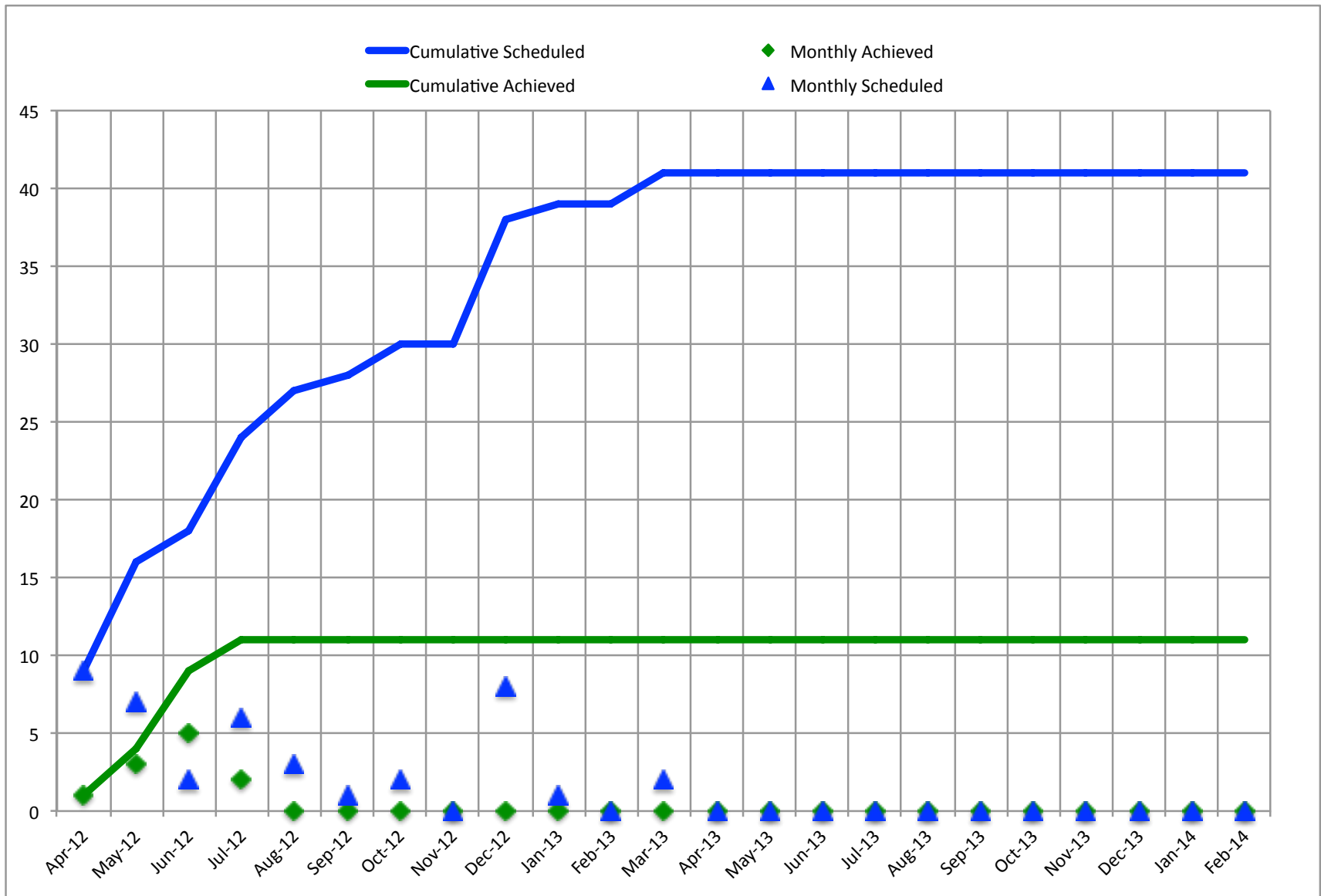
# Shutdown float

- OpenPlan end of shutdown: April 10, 2012
  - RR30 installation
  - Move ~4 weeks of cable pulls forward in the schedule and recover this time -> mid March 2012
  - RF Cavity will probably become the driver soon





# Remaining milestones

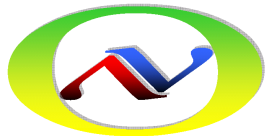




# Summary

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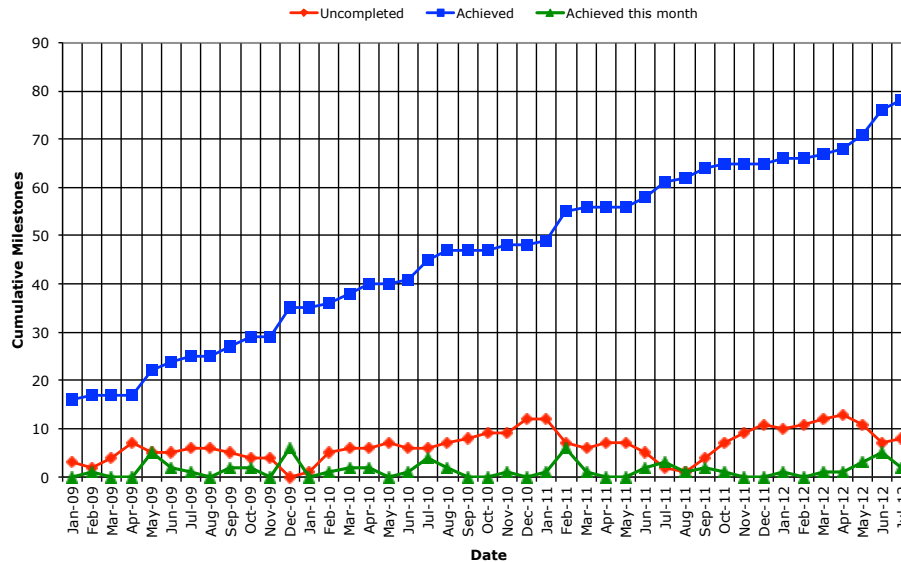
- Shutdown work progressing
  - Injection Kickers installed!
  - 4 of 6 BPM houses done, will do 30 and 60 September/October
  - Entering a lull in ANU tunnel work
    - Injection line vacuum waiting on beam pipe still
    - RR 30 and Extraction line in November
    - RF Cavities in January
- Still on schedule for 1 April 2013 completion



# Milestones

- Accomplished (June/July): 7 (7 scheduled) Missed

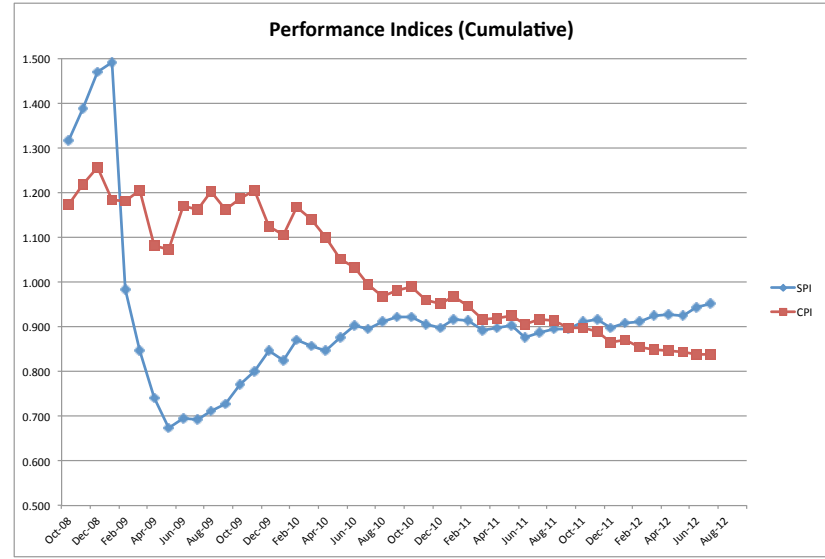
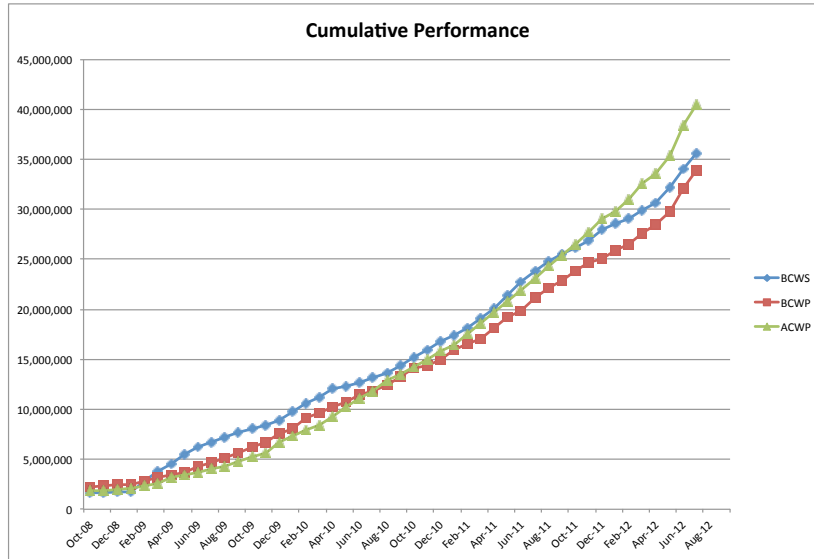
ANU Milestones



Activity ID	Milestone Description	Computed Status	Early/Actual Date	Baseline Date	Milestone Level
2.0 -- ANU Construction					
2.0.4.4.2.13	Off-Project:: NuMI Modified Horn 1 Ready for Installation	Planned	01Aug12	14May10	L.5
2.0.4.4.2.8	Off-Project: NuMI Horn 1 Modules Installed in Chase Complete	Planned	28Sep12	15Jul10	L.5
2.0.1.3.4.3	RR DCCT Ready for Installation	Planned	01Aug12	05Jan11	L.5
2.0.1.1.5.10	First MLAW Magnet Complete	Planned	01Aug12	01Sep11	L.5
2.0.1.3.4.5	RR BPM System Procurement Complete	Planned	14Aug12	18Oct11	L.5
2.0.1.1.5.11	Second MLAW Magnet Complete	Planned	28Sep12	31Oct11	L.5
2.0.1.1.5.12	All MLAW Magnets Complete (including spares)	Planned	27Dec12	01Feb12	L.5
2.0.4.4.3.7	RR Inj & GC Install PFNs in MI-14 & MI-39	Planned	20Aug12	13Mar12	L.5
2.0.4.4.3.10	RR Inj & GC Install Resonant Chargers in MI-14 & MI-39	Planned	04Sep12	18Apr12	L.5



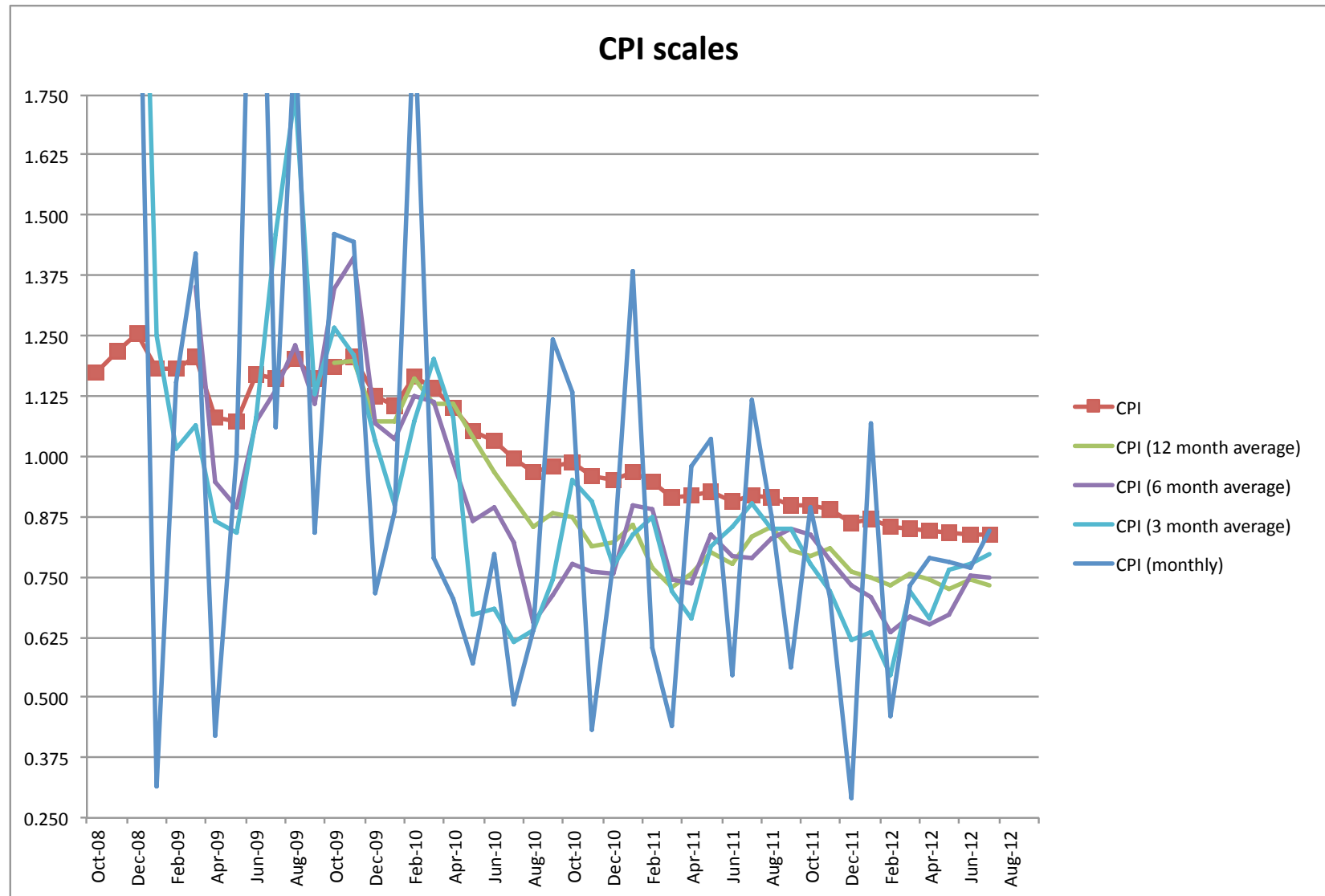
# EVMS Performance

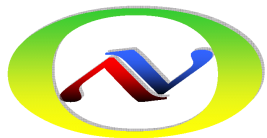


Month	BCWS	BCWP	ACWP	SPI	SV (\$)	CPI	CV (\$)
Oct-11	\$452,944	\$616,798	\$716,328	1.36	347,719	0.86	(118,116)
Nov-11	\$732,319	\$834,344	\$1,178,574	1.14	102,025	0.71	(344,231)
Dec-11	\$1,017,305	\$369,795	\$1,274,208	0.36	(647,510)	0.29	(904,412)
Jan-12	\$581,113	\$860,305	\$805,092	1.48	279,192	1.069	56,587
Feb-12	\$561,330	\$544,809	\$1,180,131	0.97	(16,521)	0.46	(635,322)
Mar-12	\$759,409	\$1,128,324	\$1,541,540	1.49	368,914	0.73	(413,216)
Apr-12	\$845,830	\$820,307	\$1,041,863	0.97	(25,523)	0.79	(221,555)
May-12	\$1,561,287	\$1,372,793	\$1,757,983	0.88	(188,494)	0.78	(385,190)
Jun-12	\$1,785,348	\$2,327,656	\$3,027,918	1.30	542,308	0.77	(700,263)
Jul-12	\$1,624,540	\$1,762,817	\$2,084,021	1.09	138,277	0.85	(321,203)

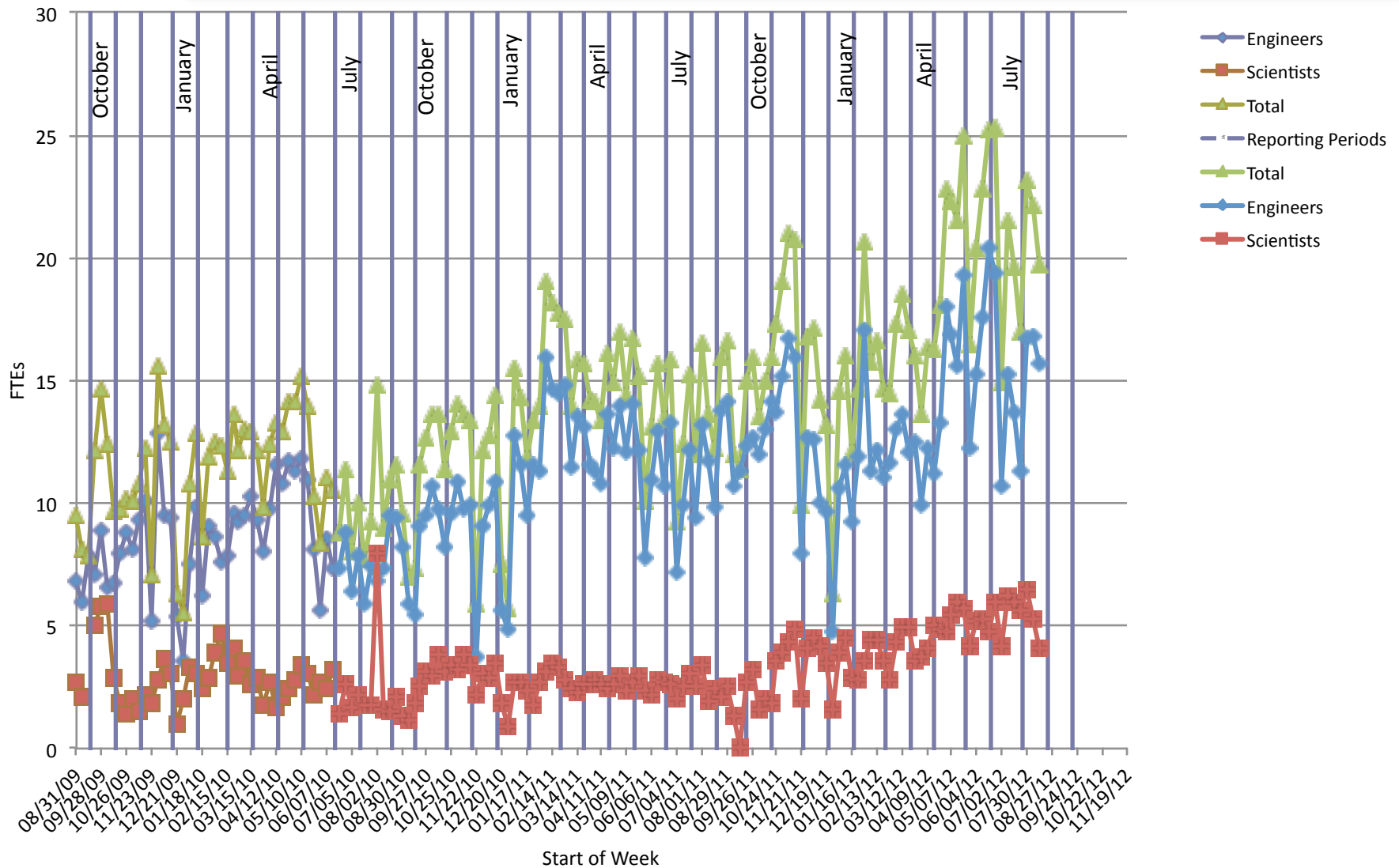


# Shorter term trending?

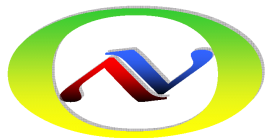




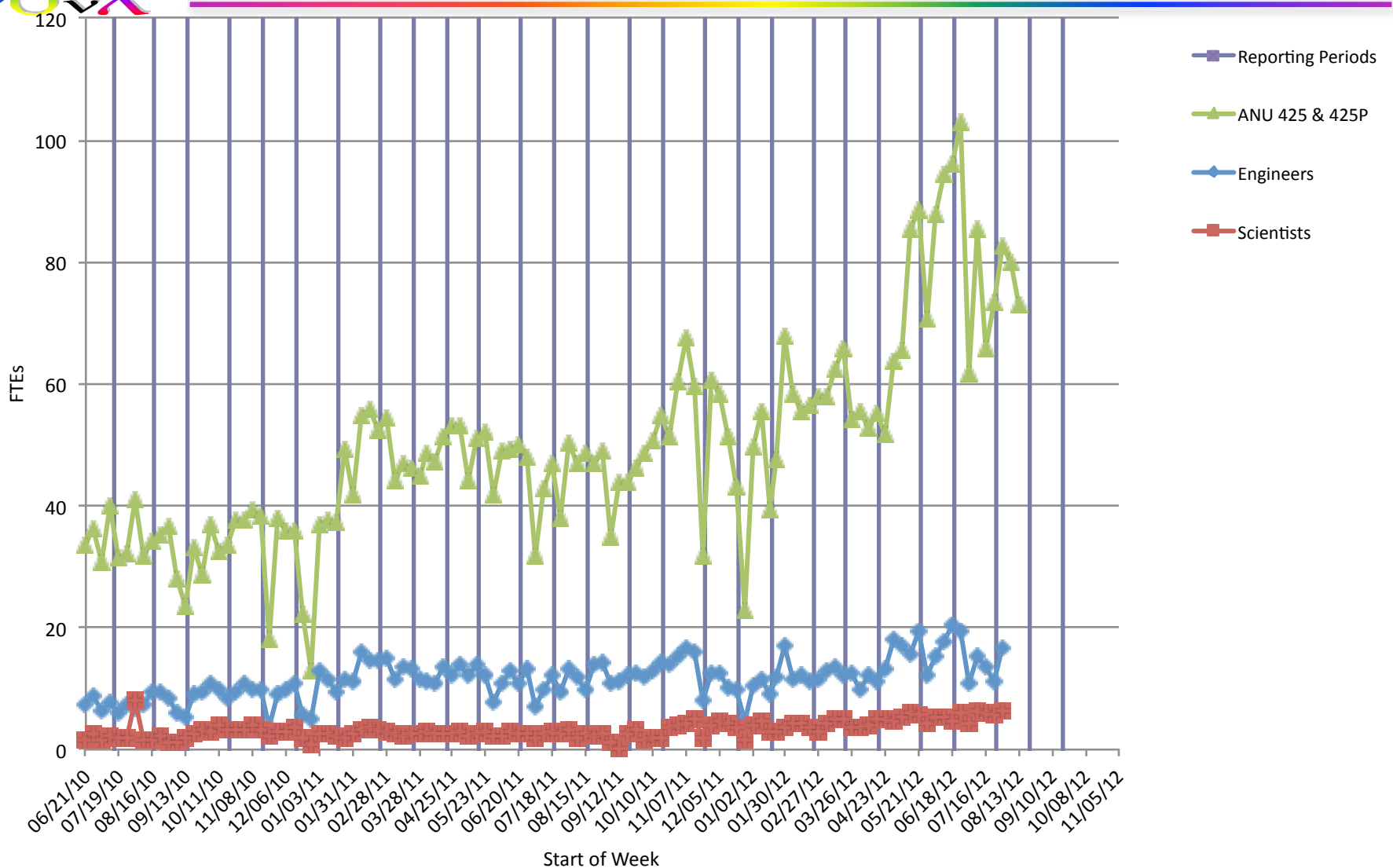
## Engineers & Scientists FTE by week



FTE := 34 hours/week



ANU FTE by week



FTE := 34 hours/week